

REMARKS

In response to the Office Action mailed on May 31, 2006 Applicants have amended Claims 2, 6, 9, 12, 14, 19, 20, 22, 27, 28, 31, 30 and 34 and has added new Claims 35 - 38. Accordingly, Claims 2, 4, 6 - 10, 12, 14 and 19 - 38 are pending in the Application. In addition, the Specification has been amended to correct a minor error regarding the direction of curl reduction. Support for this amendment is present, for example, in Fig. 3 being described in the amended paragraph and elsewhere throughout the Application.

As noted in the subject Application and throughout the prosecution of the subject Application, a primary objective of the present application is to provide a binder strip having reduced transverse curl. A key part of the curl reduction is the introduction of mechanical deformations in the heat-activated adhesive after the adhesive has been applied to the substrate in molten form and permitted to cool. As explained in the subject application and as argued repeatedly during prosecution, this sequence produces a binder strip having mechanical properties that differ from the prior art binder strips. This difference in mechanical properties is a result of structural differences between the claimed binder strips and that of the prior art.

By way of example, in responding to various rejections of product-by-process claims, Applicants have argued that the resultant binder strips are structurally different from the prior art in that, for example, the prior art does not disclose the sequence of adhesive cooling followed by mechanical deformations. In response, the Examiner has not asserted that the prior art shows the disclosed sequence. Instead, the Examiner has simply disregarded these limitations with no explanation whatsoever, as indicated by the following quotation:

"The applicant argues that the structure implied by the process limitations in the product by process claims must be taken into account. The structure implied thereby in the claims is a strip comprising hot-melt adhesive containing deformations (i.e. specifically grooves and/or punctures, of which is structurally shown in the prior art."

May 31, 2006 Office Action at pages 6 - 7.

Applicants can only conclude that the Examiner is skeptical, at best, of the repeated representations made in the subject application and the repeated representations made by counsel regarding the efficacy of the present invention. Thus, it appears that the rejection should have been one based upon a lack of utility under 35 USC §101 rather than anticipation under §102. Filed concurrently herewith is a Declaration of Eugene Anderson Pursuant to Rule 132 (hereinafter "Anderson Declaration"). As stated in the Anderson Declaration at § 1 and §2, Mr. Anderson is an employee of the assignee of the present application and a named co-inventor. In response to the above-noted Office Action, Mr. Anderson was requested to prepare various types of binder strips to address what Applicants now believe is the actual grounds for the rejection. As indicated in the Anderson Declaration at §4, three categories of binder strips were prepared. Five binder strip samples of each category accompany the Anderson Declaration, with the samples being in a special container so that transverse curl is not temporarily reduced due to binder strip compression. Category (a) binder strips were prepared with no mechanical deformations, category (b) binder strips were prepared having mechanical deformations that were introduced when the heat-activated adhesive was still molten and category (c) strips were prepared by introducing the mechanical deformations after the heat-activated adhesive had cooled.

As stated in the Anderson Declaration at §5 and §6, the category (a) strips exhibited substantial transverse curl. The category (b) strips exhibited no significant curl reduction notwithstanding the presence of mechanical deformations whereas the mechanical deformations made in accordance with the present invention, the category (c) strips, resulted in a substantial reduction in curl. As further noted in the Anderson Declaration at §7, the difference in performance between the category (b) and (c) binder strips is attributable to structural differences between the respective adhesive layers which result when the deformations are introduced after adhesive cooling rather than when the adhesive is still molten.

Referring now to the rejections, Claims 2, 4, 6, 7, 8 and 12 were rejected for being anticipated by USPN. 4,471,976 to Giulie (hereinafter Giulie).

Reconsideration of this rejection is respectfully requested. Giulie is said to disclose a "binder strip 12" having a "substrate 19, 23" with a "heat activated adhesive 14" together with "valleys 17" formed in the adhesive. This rejection is respectfully traversed.

Rejected Claim 2 is directed to an "adhesive binding member" made in accordance with the recited method. The method includes, among other things, "subsequent to the cooling [of the molten adhesive] and prior to application of the binding member to a stack to be bound, mechanically deforming a surface of the layer of adhesive to a degree such that curling of the binding member along the transverse axis is substantially reduced". In rejecting Claim 2, no mention is made regarding this quoted limitation "subsequent to cooling," it being apparent that this limitation is being given no weight even though the process limitation inherently results in a structure that would be different that if the grooves were applied after cooling .

As described in the Anderson Declaration at §9 and §10, layer 14 of Figs. 3 and 4 of Giulie, including peaks 16 and valleys 17, were almost certainly applied by extrusion of molten adhesive having an appropriately shaped die. First, this is consistent with the profile of the peaks and valleys shown in the drawings. Further, Mr. Anderson is "not aware of any other practical way of applying molten adhesives in the manufacture of binder strips or any other similar application". In addition, it would unnecessarily "turn a one step process (a process using a suitably shaped extrusion die) into a two step process" which would provide no apparent benefit given that the sole purpose of the valleys 17 is to facilitate folding. Instead, such a two step process "would needlessly complicate the manufacturing process and increase manufacturing costs and would not be adopted in my view" according to Mr. Anderson.

Thus, the "grooves" 17 of Giulie were formed while the molten adhesive is applied to the "substrate". As a consequence, the mechanical properties of adhesive layer 14 of Giulie are not the same as those of the adhesive layer formed in accordance with Claim 2. This difference in mechanical properties must be

attributable to structural differences in the adhesives as set forth in §7 of the Anderson Declaration.

It should be noted the profile of the adhesive 24 shown in Fig. 5 of the subject Application may superficially indicate that grooves 44 also could have been formed in molten form using extrusion. That is clearly not the case based upon the text of the Application. The subject application describes two specific examples for forming grooves 44 of Fig. 5 including the use of a "rotary slitting knife" or a "tool carrying razor sharp cutting edges" as noted at page 10 of the subject Application starting at line 1 of page 10 through line 13 of page 11. One of ordinary skill in adhesive technology would also know that cooled hot melt adhesive of the type used in binder strips has a certain degree of memory so that a slit cut in the cooled adhesive surface will have a tendency to close in which case the width of the grooves 44 would be very narrow. In fact, if "razor sharp cutting edges" were used the slits "are not necessarily open visibly" as noted at page 11, line 7 - 8 of the Application. Given this description, one of ordinary skill would recognize that the profile of grooves 44 depicted in Fig. 5 is not intended to convey the actual dimensions of the groove or to convey the manner in which the grooves are formed. Further, there is nothing in the text of Giulie to indicate that any such non-conventional approach was used to form valleys 17.

In view of the foregoing, it is clear that the binder strip of Claim 2 differs structurally from the Giulie apparatus. Thus, Giulie does not anticipate Claim 2 under §102. Further, there is nothing in Giulie that teaches or suggests that the Giulie apparatus could somehow be modified to provide the claimed binder strip. That is because the grooves 17 in Giulie are provided for the sole purpose of facilitating folding as shown in Fig. 3 of that patent. This is reinforced by the presence of score lines 15 located opposite each of the valleys 17. Thus, Claim 2 is not rendered obvious under §103 whether taken alone or in combination with any other prior art. Claim 4 is believed to be patentable in that it depends from allowable Claim 2 and adds patentably significant limitations to the claim and is thus

believed to be allowable for that reason alone. New dependent Claim 36 adds the limitation that the deformations are formed "without removal of a significant amount of adhesive." Support for this language is disclosed, by way of example, where it is stated that "[g]roves 44 can be created in various manners, although it has been found that using conventional rotary slitting with a blade angle of 45 degrees and an edge radius of 0.005 inches is satisfactory." [Application at page 10, line 19 et seq.] Slitting adhesive in this manner does not result in the removal on any adhesive.

Rejected Claim 6 is directed to a binder strip with an adhesive "having an exposed surface containing mechanical deformities which were introduced into the adhesive when the adhesive was in a cooled state". As previously noted, this feature is neither taught nor suggested by Giulie. Claims 7, 8, 9, 10, 28, 29 and 35 all depend, either directly or indirectly from allowable Claim 6 and are believed to be allowable for that reason alone.

Rejected Claim 12 is directed to a binding member made in accordance to a method wherein "subsequent to the cooling [of the molten adhesive], the adhesive is subjected to the step of "mechanically deforming an exposed surface of the adhesive layer to an extent that curling of the substrate along the transverse axis is substantially reduced". Thus, for at least substantially the same reasons noted above regarding Claim 2, it is submitted that Claim 12 is also patentable over Giulie.

Claims 2, 4, 6, 7, 8, 9, 12, 14, 19 – 25, 27, 29, 30 and 33 were rejected for being anticipated by USPN. 4,800,110 to DuCorday (hereinafter DuCorday). Reconsideration of this rejection is respectfully requested. DuCorday discloses a binder member having adhesive beads 28, 30 and 32 as shown in Fig. 1 which can be separately torn away to accommodate the thickness of the stack of sheets to be bound. A pair of grooves 34 and 36 are formed intermediate the beads to facilitate the separation of the beads. That function and along with facilitating folding are believed to be the sole functions of grooves 34 and 36. As noted in the Anderson Declaration, it is believed that the beads 28, 30 and 32 and the intermediate grooves 34 and 36 were formed when the adhesive was molten using an extrusion process (Anderson Declaration at §11). According to Anderson, the use of the phrase

"adhesive beads" in the field of adhesive technology clearly signals that these elements were formed when the adhesive was molten. Thus, the structure of the DuCorday adhesive is not the same as the structure of the claimed adhesives. Thus, for at least substantially the same reasons note above regarding Giulie, it is submitted that Claims 2, 6 and 12 are patentable over DuCorday as are all of the relevant dependent claims.

Rejected Claim 14 is also directed to a binder strip made in accordance with the recited method. That method includes the step of "subsequent to the cooling, forming a multiplicity of grooves in an exposed surface of the adhesive layer. As previously noted, grooves 34 and 36 are not formed in this manner so the structure of the adhesive of DuCorday is not the same as the structure of the claimed adhesive. See the Anderson Declaration at §7 and at §11. Thus, DuCorday neither anticipates Claim 14 nor does it render the claim unpatentable under §103. Claim 37 depends from Claim 14 and is believed to be patentable for that reason alone.

Rejected independent Claims 19 is directed to a binder strip having an "elongated substrate" and "a layer of heat-activated adhesive disposed on a surface of the substrate and extending substantially a full length of the substrate along the longitudinal axis" of the substrate. A "multiplicity of grooves [are] formed in an exposed surface of the adhesive which extend at least 20% of the thickness of the adhesive layer". The substrate includes "a pair of opposing substrate edges parallel to the longitudinal axis with the substrate edges being unconnected to any structure separate from the substrate by means other than the heat-activated adhesive". Claim 19 has been amended to further recite that the heat-activated adhesive covers "at least a majority of the surface of the substrate".

Among other things, it can be seen that the DuCorday "substrate" of Figs 1 and 2 must include back cover section 12, intermediate spine section 16 and flange section 14. The heat-activated adhesive formed by beads 28, 30 and 32 covers far less than "at least a majority of the surface of the substrate" as recited in amended Claim 19. Thus, DuCorday does not anticipate amended Claim 19. In addition, there would be no motivation to somehow modify the DuCorday structure to arrive

at the claimed invention. For example, it would provide no function to extend the adhesive over cover section 12. Further, the objective of the DuCorday invention would be defeated if cover section 12 were eliminated for some reason. Thus, Claim 19 is also believed to be patentable over DuCorday under §103. Claims 30, 31 and 32 depend either directly or indirectly from allowable Claim 19 and are believed to be patentable for that reason alone.

Rejected Claim 20 is directed to an adhesive binding member made in accordance with the recited process. Among other things, the process calls for "mechanically deforming a surface of the layer of adhesive ..." after adhesive cooling. This, the resultant structure of the adhesive differs from that of DuCorday for the reasons previously noted. Accordingly, Claim 20 is believed to be patentable as are Claims 21 and 38 which depend, either directly or indirectly, from Claim 20 and add patentably significant limitations to the claim.

Rejected Claim 22 is directed to a binding member having "mechanical deformities [in a layer of heat-activated adhesive] of a nature to substantially reduce curling of the binding member along the transverse axis" of the "elongated region" upon which the adhesive is disposed. Claim 22 has been amended to further recite that "first surface of the substrate and a second surface of the substrate opposite the first surface are both substantially smooth in all of the substrate surface regions directly opposite the mechanical deformations in the adhesive".

As can be seen in Figs 1 and 5 of DuCorday, a score line is present in the substrate opposite each groove formed in the adhesive as noted in the Anderson Declaration at §11.. Clearly, these score lines are present to facilitate folding at the location of the valley. Thus, Claim 22 is not anticipated by DuCorday. Furthermore, removal of the score lines would defeat a primary objective of DuCorday which is to permit the apparatus to be wrapped around a stack to be bound. The importance of the score lines and the lack of motivation to remove the score lines are discussed further below where a citation of legal authority is provided. Thus, Claim 22 is also not rendered obvious over DuCorday under §103. Claims 23, 24, 25, 26, 33 and 34

all depend, either directly or indirectly from allowable Claim 22 and are thus believed to be allowable for that reason alone.

Claims 2, 4, 6, 7, 10, 11, 12, 14, 20-23, 26-29, 33 and 34 were also rejected for being anticipated by USPN. 4,371,195 to Wang et al (hereinafter Wang). Reconsideration of this rejection is also respectfully requested. Claim 11 was previously cancelled so this is believed to be an error. Col. 2, lines 26 – 30 of Wang was cited in the rejection for what appears to be the proposition that the deformities aid in cold folding. In fact, the only purpose for the adhesive pattern which includes narrow ribs 23a and 24a of adhesive is to facilitate folding. Once folded, according to Wang, the folded substrate tends to stay in place and not "spring back." That is not curl reduction, that is curl retention. Note also that a score line 20 is located in substrate 17 under each of the set of ribs 23a and 24a to further facilitate folding.

It should be noted that Claims 28, 31, 32 and 34 were also rejected over DuCorday in view of Wang under §103. According to the rejection, "Wang et al teaches the second surface of the substrate in a binder strip being smooth. Refer to the surface of substrate 17 opposite adhesive 21, 23 and 24 in figures 1-3." [Office Action at page 5]. As noted above, score lines 20 of Wang are disposed opposite each of the "deformations" cited by the Examiner. The score lines 20 are disposed on the inner surface of the substrate 17 as opposed to the outer surface. Regardless of which surface the score lines are located, there is nothing in the prior art that suggests or teaches that the score lines could be eliminated. The comment in the subject Office Action regarding the elimination of the grooves of DuCorday for being a "matter of obvious design choice" is not correct. It is critical in the DuCorday design that the cover be capable of being wrapped around the stack to be bound. If this function is eliminated or made more difficult by removing the score lines, this critical objective of DuCorday is defeated. To degrade a design is not an "obvious design choice". The same is true of the score lines of Wang. The entire objective of the thin ribs 23a and 24a of Wang is to facilitate folding. To defeat or hinder this critical objective of the very structure cited in the rejection by eliminating the score lines 20 is also not an "obvious design choice". The case of In re Karlson,

135 USPQ 184 (CCPA 1963) cited in the rejection deals with the elimination of a function as being obvious "if there remaining elements perform the same function as before". 135 USPQ at 186. In both the DuCorday and Wang structures, the remaining structural elements ability to bind a stack of sheets is eliminated if it is not possible or if it is difficult to wrap the binding element around the stack to be bound. As noted in In re Gordon, 221 USPQ 1125 (Fed Cir 1984, if the proposed modification, the elimination of score lines, would render the prior art structure being modified unsatisfactory for its intended purpose, such modification is not proper.

As noted in § 12 of the Anderson Declaration, the adhesive pattern that includes ribs 23a and 24a of Wang and related structure are all formed using an extrusion process as specifically stated at Col 4, line 65 et seq. Thus, the pattern is formed while the adhesive is molten. As noted above at length, this results in an adhesive having a different structure than an adhesive with deformities added after cooling. Further, regardless of whether ribs 23a and 24a are formed when the adhesive is molten or cooled, the ribs and associated structure are located only at the extreme sides of central adhesive strip 21. The vast majority of the surface of adhesive strip 21 is lacking such ribs. Thus, as stated in the Anderson Declaration at §12, there will be no significant transverse curl reduction.

For substantially the same reasons set forth above regarding Giulie and DuCorday, it is submitted that Claims 2, 4, 6, 7, 12, 14 and 20 are allowable as are all of the associated dependent claims. As noted above, Claim 22 is directed to an adhesive binding member having mechanical deformities formed in the adhesive layer "of a nature to substantially reduce curling of the binding member along the transverse axis" of the member. As noted above and as set forth in the Anderson Declaration at §12, the ribs 23a and 24a and associated structure will not result in curl reduction. As also noted above, Claim 22 further recites that the opposite surfaces of the substrate "are both substantially smooth in all of the substrate surface regions directly opposite the mechanical deformities in the adhesive". As also

noted above, Wang includes a score line 20 opposite each of the rib members 23a and 24a.

Thus, Claim 22 is not anticipated by Wang. Further, it would make no sense to add further rib members to Wang so that there is even a plausible argument that curl reduction is achieved. As noted above, it would make no sense to remove the score lines 20 since this would defeat the primary goal of the rib members which is to facilitate folding. Claims 23, 24, 25, 26 and 33 and 34 all depend, either directly or indirectly from allowable Claim 22 and are thus allowable for this reason alone.

In conclusions, all pending claims are believed to be in condition for allowance and an early allowance is respectfully requested.

Respectfully submitted,

GIRARD & EQUITZ LLP

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By: 

Philip A. Girard
Reg. No. 28,848

Attorneys for Applicant(s)

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